

PAT-NO: JP401230478A  
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TITLE: HOMOGENEOUS SINTERED SILICON NITRIDE  
AND PRODUCTION THEREOF  
PUBN-DATE: September 13, 1989

INVENTOR- INFORMATION:

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ASSIGNEE- INFORMATION:

NAME	COUNTRY
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ABSTRACT:

PURPOSE: To obtain a uniform and high-strength sintered silicon nitride, by mixing, pulverizing, granulating and forming a silicon nitride raw material and a sintering assistant, calcining the formed article and cooling at a specific cooling rate.

CONSTITUTION: A silicon nitride raw material and a sintering assistant are mixed, pulverized, granulated and formed, and the obtained formed article is calcined to obtain a sintered silicon nitride. In the above process, the

in the atmosphere under 1-2 atm pressure and held at 1,400-1,600°C preferably for 0.5-2 hr until it is made substantially free from open pores. In the 2nd stage, the pressure of the atmosphere is increased to  $\geq$ 30 atm and the green compact is held at 1,400-1,600°C preferably for 2-5 hr until the residual  $\alpha$ -rate of the resultant sintered compact attains to 5-35%. The sintered compact contains 4-10 wt.% (expressed in terms of  $\text{Yb}_{2}\text{O}_{3}$ ) Yb, 2-5 wt.% (expressed in terms of MgO) Mg and 0.5-4 wt.% (expressed in terms of  $\text{Al}_{2}\text{O}_{3}$ ) Al and the weight ratio of  $\text{Al}_{2}\text{O}_{3}$  to MgO is  $\leq$ 1.

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